



# ***Navy Workforce Research & Analysis Conference***

## ***ASW Air VAST SH-60B***

### ***Mission Rehearsal Tactical Team Trainer (MRT3)***

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# Presentation Content

- Simulation Overview
- Selective Fidelity
- Mission Rehearsal Tactical Team Trainer (MRT3)



# Types of Simulation

- Live
  - Real people, real equipment conducting training
  - Ships, subs, planes, tanks, individual combatants, etc.
- Virtual
  - Human-in-the-loop, using simulators, integrated in the training event
  - Networked vehicle simulators, combat data center mock-ups, UAV simulators, etc.
- Constructive
  - Simulated forces generated to enhance training
  - Computer generated forces representing ships, planes, tanks, etc.



# Common Synthetic Battlespace



# Virtual Simulator Development

- Based on a specific intended use
  - Basic training, platform training, graduate level training, Fleet training
  - Procedural skills, tactical team skills
- Fidelity (“faithfulness” to the real world) range
  - High physical fidelity for “entry level” procedural skills training
    - Learn to drive, fly, march
  - High mission space representation fidelity for “expert” Fleet training
    - Maintain combat readiness in operationally relevant environment

# Selective Fidelity Simulator Design

- Provides crew station functionality necessary to complete specified team training tasks
  - Example: SH-60B training and readiness event matrix
- Sacrifices physical fidelity
  - Employed by “procedural” experts in vehicle maneuver and weapon system employment skills
- Provides access to operationally relevant synthetic battlespace
  - Includes other “team” members
    - For SH-60B this includes task force ships, other SH-60Bs, P-3C, ASWC
  - Robust adversary forces
  - Geo-specific terrain

# Selective Fidelity Test

- Which is the higher fidelity SH-60B for deployed Fleet tactical team training?



or



- |                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• The highest physical fidelity</li> <li>• Very low mission space fidelity                             <ul style="list-style-type: none"> <li>- Other "team" members seldom available</li> <li>- Limited adversary support</li> <li>- Range limitations</li> <li>- Safety limitations</li> <li>- Weapon employment limits</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Very low physical fidelity</li> <li>• Very high mission space fidelity                             <ul style="list-style-type: none"> <li>- Includes other "team" members</li> <li>- Wide range of adversaries</li> <li>- No range limitations</li> <li>- Safety not a factor</li> <li>- No limits on weapon employment</li> </ul> </li> </ul> |
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# MRT3 Concept

- Develop a networked prototype PC-based deployable Mission Rehearsal Tactical Team Trainer to support integrated / coordinated ASW tactical objectives
  - Employed by expert aircrew ashore and deployed
  - A “stick and rudder trainer” for the team
- SH-60B Rapid Prototype w/leave-behind capability
- Leverage existing technologies (from MH-60R development)
- Develop lessons learned to support
  - PMA 205 - Navy Aviation Simulation Master Plan (NASMP) Maritime Federation
  - PEOIWS 1E (BFTT Program Office) - Maritime integration into BFTT and HAWKLINK design compatible with BFTT / NASMP





# MRT3 Background

- Funding Sponsors
  - ONR Air VAST program
  - CFFC
- Fleet Sponsor
  - Center of Maritime Dominance / HSL WTUs
- Prove a concept using PC Based Simulation
- Well documented integrated training requirement



# Requirements for Integrated ASW Training

- CNO TASK FORCE ASW
- CPF #1 Warfighting Priority
- CFFC - ***CFFC instruction 3501.3 - fleet training strategy*** "...The 'end state' for fleet training is to provide forces ... trained as they would fight in that specific theater."
- CLF - ***message 032122Z MAY 01*** - ...Inport training is essential to maintaining combat readiness.
- FLTASWIP - ***Training working group - #1 issue*** ... authentic air ASW and IUSS trainers fully integrated into BGIE and incorporated into inport training ...is the required end state.
- AIR ASWIP
- CNO N74 - ASW STE ICD

# PHASE I

## MRT3

**Laptop 1**

**SENSO  
Station**

**Laptop 2**

**ATO  
Station**

**Laptop 3**

**PILOT  
Station**

**Laptop 4**

**Instruct  
or  
Station**

- **Cognitive Skills**

- Tactical Decision Making
- Command and Control
- Asset Management
- Sensor / weapons employment
- Team work



SH-  
60B

Phase I

Not a “Stick and Rudder” Trainer



## Air Tactics Officer

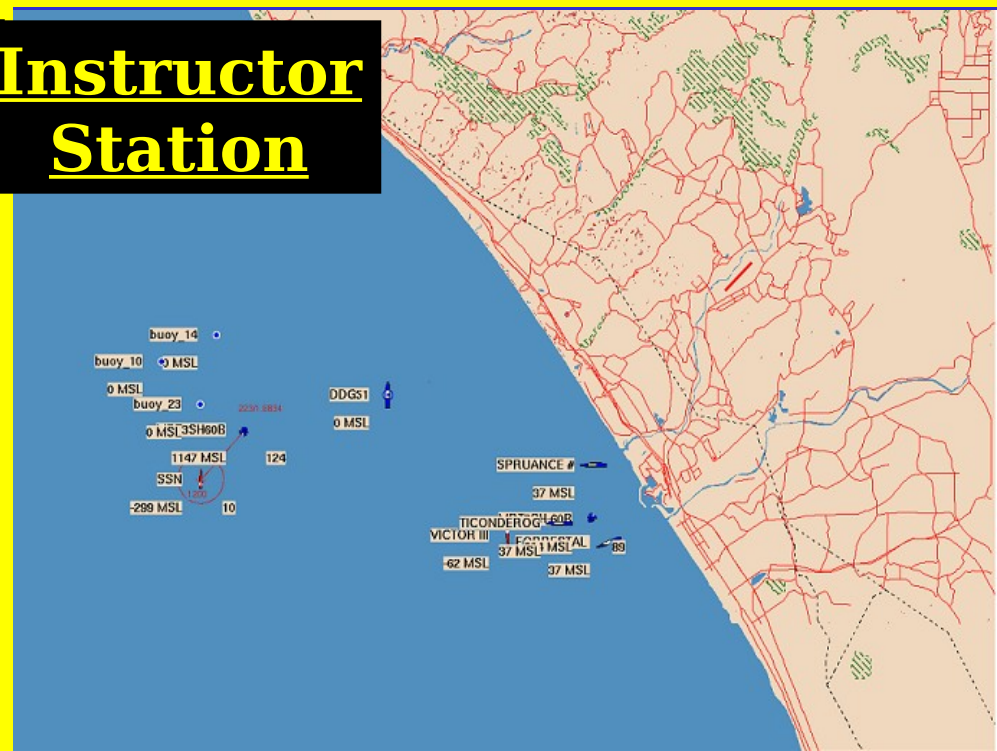


## Pilot



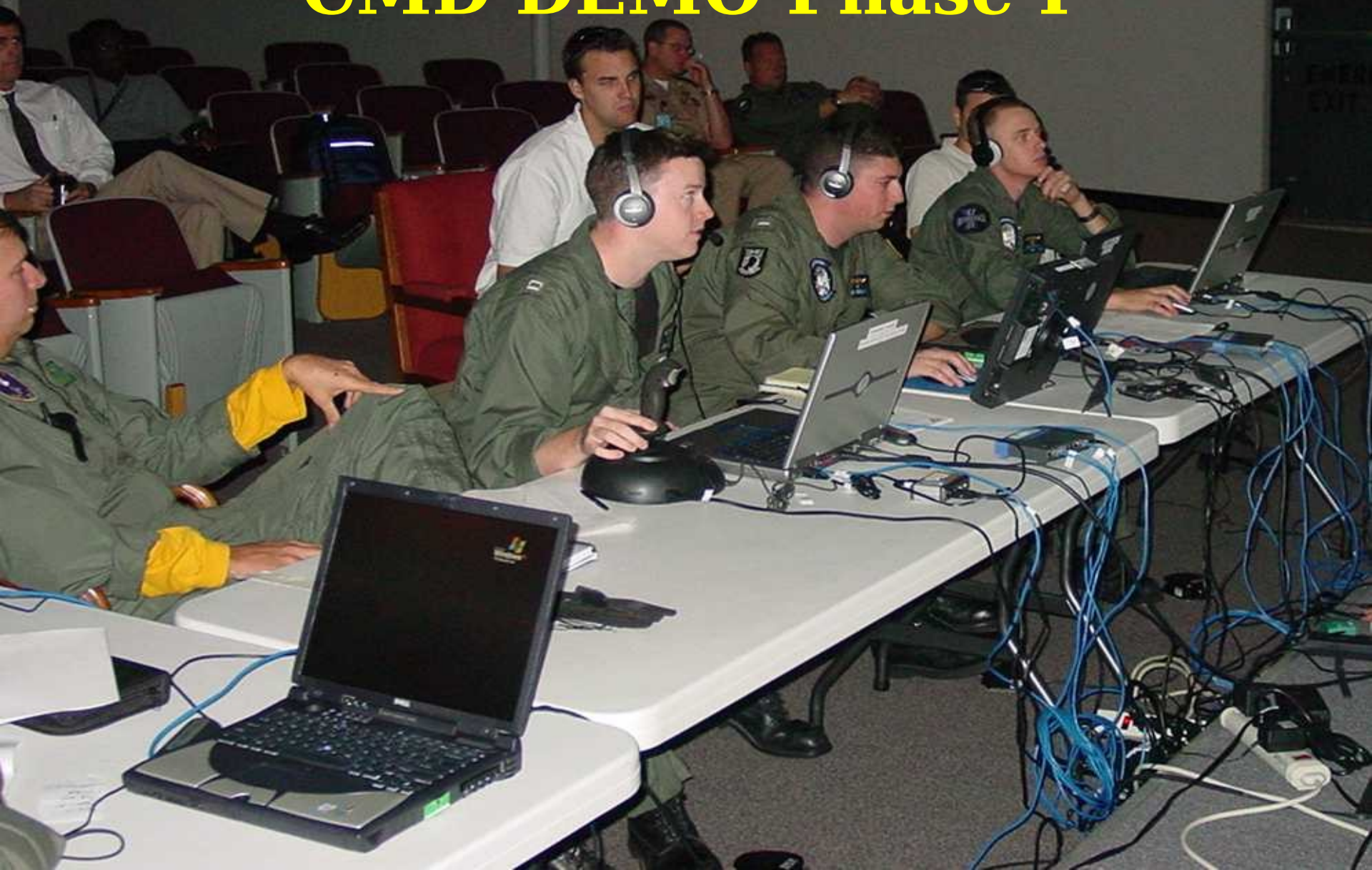
## Sensor Operator

## Instructor Station





# MRT3 SH-60B CMD DEMO Phase I





# Fleet feedback

- “Great training value, especially with tactics and crew coordination.”
- “...way to practice real life scenarios...huge loss if it was not delivered.”
- “It’s exactly what we need...extremely high training value.”
- “...can be used anytime, anywhere.”
- “...once integrated, this system will really enhance BGIE participation.”
- “Fantastic and can only get better.”

- “This is an extremely high value training tool that will help us meet our need to do integrated (ASW) training, as well as support our T&R matrix – It’s exactly what we need and the vision is right on track.”

Commodore Webb  
COMHSLWINGPAC



# MRT3 Development Strategy

Phase III



MH-60R



SH-60F

Phase II



SH-60B



SH-60B



SH-60B

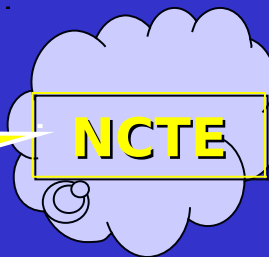
Phase I



BFTT



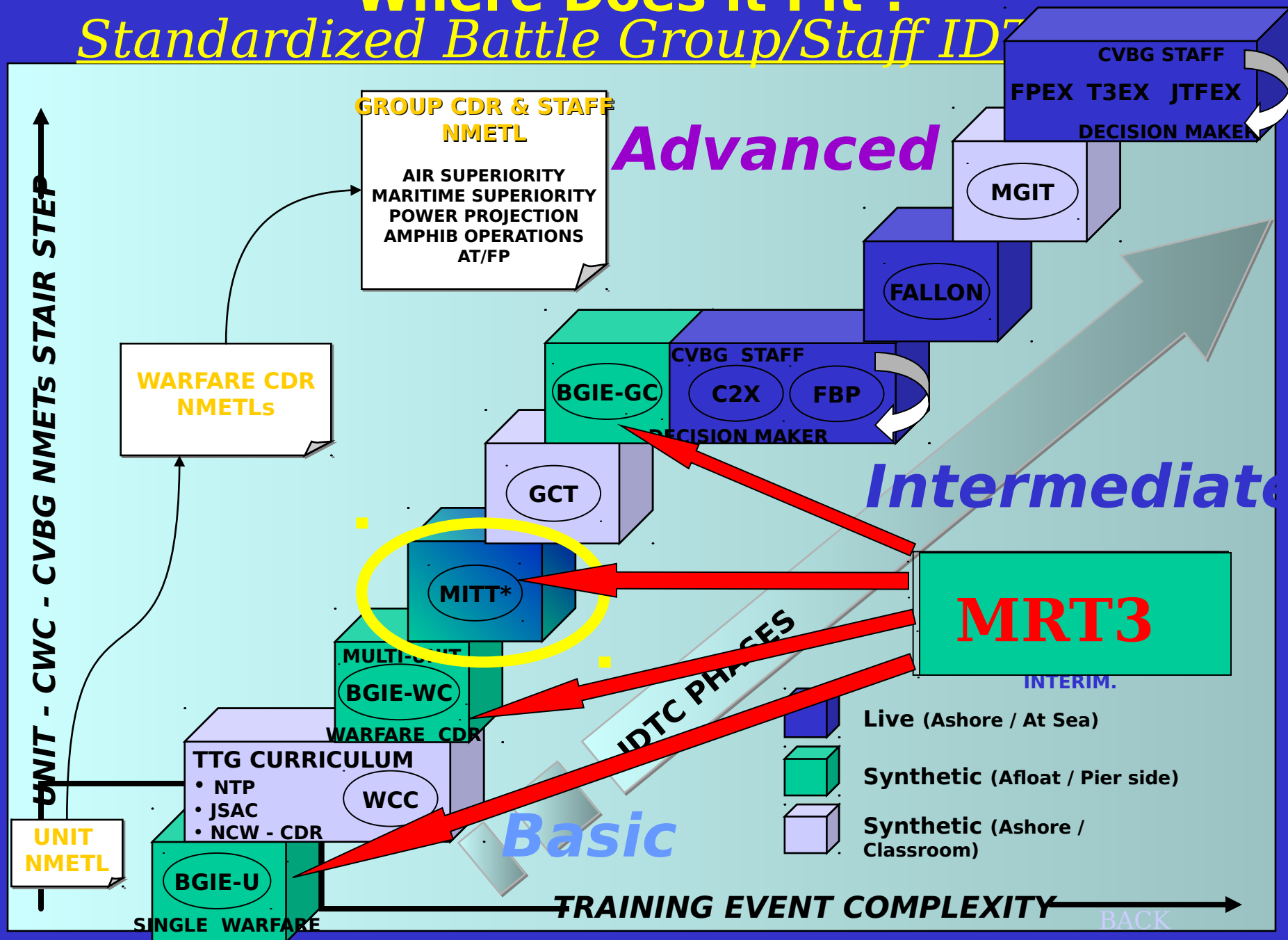
P-3C



NCTE

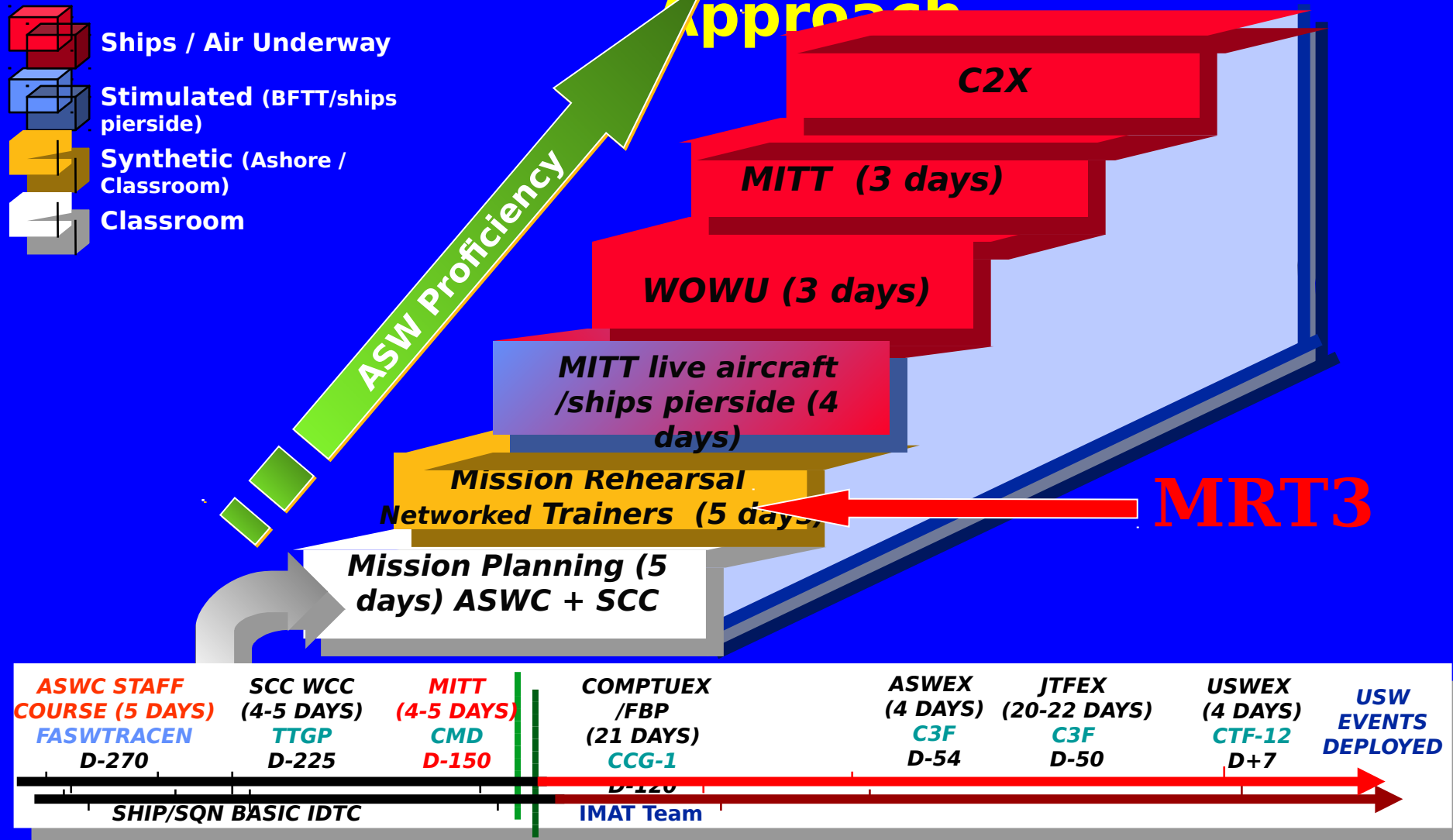
# Where Does it Fit ?

## Standardized Battle Group/Staff ID7



# Where Does it Fit ?

## Proposed MITT “Stairstepped” Approach





# Phase 1 STATUS

- Successful Sept 03 Deliverable
- Funded for Phase II
  - ONR and CFFC
- POM 06 issue paper submitted to PMA 205
- Detail Planning for Phase II
- Focused on HSL ASW T&R/Integrated Events
  - ASW 101 CZEX; ASW 102 Datum EX; ASW 103 TDT; ASW 104 Pre-TORPEX; M/BGIE

Fleet Input has been key to success

# CURRENT STATUS

- Phase II (FY04)
  - Refine SH60B development
  - Network / federate three SH60B's
  - MRT3 re-architecture for deployed reliability/usability
  - Integrate into ITA aka Navy Continuous Training Architecture
  - Provide engineering design recommendations for "Hawklink" compatible with BFTT / NASMP
  - 3 MRT3 device leave behind capability at CMD
- Phase III (FY05)
  - MRT3 architecture improvements
  - Integrating SH60F, P-3C and MH60R platforms

# QUESTIONS ?